Patent claims

1. A method for determining the local distribution of at least two sets of point radiation objects each with a set-specific radiation type on a common support surface, having the following steps:

a) finding a first local distribution of the radiation intensity of the support surface,

b) modifying the intensity of at least one set-specific radiation type with an associated modification factor,

c) finding at least a second local distribution of the radiation intensity of the support surface, and

d) calculating the local distributions of each of the at least two sets of point radiation objects individually from the first and the at least second local distributions which have been found.

2. The method as claimed in claim 1, characterized in that the modification step b) and the step c) of finding the at least second local distribution of the radiation intensity of the support surface are repeated at least once, preferably with a different modification factor.

3. The method as claimed in claim 1 or 2, characterized in that a local distribution of the radiation intensity which has been found is represented by an associated pixel matrix, with a pixel value of the matrix representing the radiation intensity of an associated position on the support surface.

4. The method as claimed in claim 3, characterized in that the local distribution of each of the at least two sets of point radiation objects is determined individually on the basis of the pixel matrices.

5. The method as claimed in claim 3 or 4, characterized in that the local distribution of each of the at least two sets of point radiation objects is

determined individually on the basis of intensities which are obtained by adding up pixel values of defined, in particular neighboring, elements of the pixel matrix.

6. The method as claimed in one of the preceding claims, characterized in that each set of point radiation objects consists of at least one radiating, in particular radioactively radiating, type of isotope.

7. The method as claimed in one of the preceding claims, characterized in that each set of point radiation objects consists of light-emitting, in particular fluorescent, phosphorescent and/or luminescent, substances.

8. The method as claimed in one of the preceding claims, characterized in that there is at least one calibration point with known radiation for at least one set of different point radiation objects at at least at one position on the support surface.

9. The method as claimed in one of the preceding claims, characterized in that the ratio of the modification factors of the set-specific radiation types is between 5% and 90%, preferably between 10% and 70%, in particular between 15% and 50%.

10. The method as claimed in one of the preceding claims, characterized in that the modification factor is obtained by using at least one absorber.

11. The method as claimed in one of the preceding claims, characterized in that the modification factor is obtained by radioactive decay of the point radiation objects of the at least two sets, with the respective point radiation objects of the at least two sets preferably having different half-lives.

12. The method as claimed in one of the preceding claims, characterized in that the modification factor

is obtained by a differing sensitivity of a detector, used for finding a local distribution of the radiation intensity of the support surface, for the respective set-specific radiation type of the at least two sets of point radiation objects.

13. The method as claimed in one of the preceding claims, characterized in that the local distributions are found by using a position-resolving detector for alpha, beta, gamma and/or X-radiation.

14. The method as claimed in one of the preceding claims, characterized in that the local distributions are found by using a so-called phosphor imager detector.

15. The method as claimed in claim 14, characterized in that a differing sensitivity of a phosphor imager detector, used for finding a local distribution of the radiation intensity of the support surface, for the respective set-specific radiation type is achieved by the phosphor of the phosphor imager detector additionally containing atoms with a high atomic number Z, in particular lead, and/or atoms with a low atomic number Z.

16. The method as claimed in claim 15, characterized in that the first local distribution of the radiation intensity of the support surface is found by using a first phosphor imager detector, and the at least second local distribution of the radiation intensity of the support surface is found simultaneously by using at least a second phosphor imager detector, the sensitivity of the first phosphor imager detector and the sensitivity of the at least second phosphor imager detector differing for the respective set-specific radiation type.

17. The method as claimed in claim 16, characterized

in that the first and the at least second phosphor imager detectors are applied to opposite sides of the support surface.

18. The method as claimed in one of the preceding claims, characterized in that the local distributions are found by using a so-called flat panel detector.

19. The method as claimed in one of the preceding claims, characterized in that the first and the at least second local distributions of the radiation intensity are found by using the same type of detector.

20. The method as claimed in one of the preceding claims, characterized in that the at least two substances to be analyzed are respectively labeled with a set of point radiation objects, the substances labeled in this way are mixed and the mixture is subsequently applied to the support surface, particularly in the form of a flat analysis medium.

21. The method as claimed in claim 20, characterized in that the substances to be analyzed are peptides, proteins and/or oligonucleotides.

22. The method as claimed in claim 20 or 21, characterized in that the analysis medium is a protein gel, nucleic acid array, protein array, ELISA array and/or a blot.